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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,988	05/24/2006	Masato Higuchi	36856.1446	1419

54066 7590 04/29/2009
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EXAMINER

PARVEZ, AZM A

ART UNIT	PAPER NUMBER
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4136

NOTIFICATION DATE	DELIVERY MODE
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04/29/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/595,988	HIGUCHI ET AL.	
	Examiner	Art Unit	
	AZM PARVEZ	4136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/24/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/24/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/24/2008</u> | 6) <input type="checkbox"/> Other: _____ |
| <u>12/12/2007, 10/04/2007, 06/21/2007, 05/24/2006</u> | |

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 11, 12, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi et al., US Patent No. 5635115.

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4. Regarding claim 11, with references to figures. 2A-2E, 4A-4F, 7A and 17A-C Konishi et al. discloses a method for producing a semiconductor device comprising:

- a. a number of light emitting devices simultaneously produced by using a multi-cavity circuit board 10;
- b. states of a sealing resin sheet 20;
- c. heat resistance vacuum suction sack 38a ..., under airtight conditions ... heated while vacuumizing with a vacuum pump; ... a sealing resin can be formed; and
- d. the multi-cavity circuit board 10 is divided into respective cavities.

5. Regarding claim 12, with reference to figures 3C and 7C Konishi et al. discloses that "the vacuum suction sack 38a containing the multi cavity circuit board 10, the sealing resin sheet 20 ... heated while vacuumized..... is cured by further heating".

6. Regarding claim 16, with reference to figures 10A to 10C, Konishi et al., in column 15, paragraph 8 further discloses that "sealing resin sheet 23 is melted by heating and is cured by further heating. Sealing resin sheet 24...is melted by heating and is cured by further heating. In column 16 paragraph 7 the multi-cavity circuit board 10 provided with the sealing resin sheet 23 having low elastic modulus, the sealing resin sheet 24 having high elastic modulus, and the peeling sheet for surface-finish 31 is placed on the heater plate 35a, and

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the press heater 35b is heated to a predetermined temperature, a vacuum chamber 35c is vacuumized. The heated press heater 35b is lowered under vacuum so as to heat-press the multi-cavity circuit board 10 on the heater plate 35a for a predetermined period of time”.

7. Regarding claim 17, with reference to figure 7A Konishi et al. further disclose that “the peeling sheet for surface-finish 31, and the flat.....in the vacuum oven 33”.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 13,14,19 are rejected under 35 U.S.C. 103(a) as being obvious over Konishi et al. as applied to claim 11 above, further in view of Bureau et al., US Patent No. 6492194.

10. Regarding claim 13, Konishi et al. does not disclose a surface acoustic wave element. However Bureau et al. ('194) with reference to column 1 paragraph 2 discloses that, “Surface wave components (SWC) used in electronics, especially as filters in the radiofrequency

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domains or intermediate frequency domains, in order to select frequency bands in mobile telephony, make use of the principle of the generation and propagation of acoustic waves on the surface of a piezoelectric substrate. This function makes it necessary to prepare a free space on the surface of the component on which the acoustic waves are propagated".

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Konishi et al with the teachings of Bureau et al to use a surface acoustic wave element disposed on a piezoelectric substrate for the well known advantages of same as recited above.

11. Regarding claim 14, Konishi et al. does not disclose a SAW and space between the vibration portion and the substrate as claimed. However Bureau et al. ('194) with reference to column 1, paragraph 2 discloses that "This function makes it necessary to prepare a free space on the surface of the component on which the acoustic waves are propagated".

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Konishi et al with the teachings of Bureau et al because using free space with connection pads for SAW are well known techniques.

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12. Regarding claim 19, Konishi et al. does not disclose the use of electronic functional elements through bumps by flip-chip bonding. However Bureau et al. ('194) with reference to column 1, paragraphs 3 and 4 disclose that "a semiconductor component 1 is attached to a base 2 by means of "flip-chip" type contacts 11 and 12. Electrical pads 21 and 22 connect the entire component 1 to external circuits by internal metallization and via holes through the base".

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Konishi et al with the teachings of Bureau et al because flip-chip mounting technique with connection pads were known to those skilled in the art.

13. Claim 15 is rejected under 35 U.S.C. 103(a) as being obvious of Konishi et al., as applied to claim 11 above, in view of Bureau et al ('194) and further in view of Hikata et al , US Patent No. 6376915 .

14. Regarding claim 15, Konishi et al., in view of Bureau et al., do not disclose the particle size of the filler. However Hikata et al ('915) with reference to column 3 paragraph, 3 discloses that "the filler particle size is preferably greater than the distance between the solid body surface and the surface of the semiconductor chip. This prevents the filler from entering the space between the

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solid body surface and the surface of the semiconductor chip".

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Konishi et al., in view of the teachings of Bureau et al., further with the teachings of Hikata et al. because larger particle size of filler material was a well known technique to those skilled in the art for the reason recited above.

15. Claim 18 is rejected under 35 U.S.C. 103(a) as being obvious of Konishi et al., with reference to column 13, paragraph 2 discloses that the surface of the sealing resin 21 is finished to a desired state (e.g., mirror state), however it would have been well known to one of ordinary skill in the art at the time of invention that the surface roughness of the resin film may be selected in accordance with an actual or intended purpose in a particular limited range. of the technology.

16. Claim 20 is rejected under 35 U.S.C. 103(a) as being obvious of Konishi et al., as applied to claim 11 above, and further in view of view of Komatsu et al , Japanese Publication JP 2000-306810 .

Konishi et al. do not disclose a multilayered gas barrier bag as claimed. However, Komatsu et al. (see abstract) disclose that "a heater 3 and a cover sheet 4 are successively laminated with sheet-like adhesives (adhesive layers) 5 in between in a sealed package 10 formed of a flexible heat-resistant and ventilation-resistant sheet 12 with the sheet 12 being faced to the surface of the

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cover sheet 4, a deaeration process for setting a vacuum in the package 10 by evacuating the air from the package 10, and a heating/pressuring process for heating the package 10 to a prescribed temperature in a chamber 20 housing the package 10, and at the same time, pressurizing the package 10 with the gas pressure maintained at a prescribed value in the chamber 20".

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the Konishi et al. heat resistance vacuum suction sack with the teachings of Komatsu et al. to a multi-layered heat and air resistant bag for the advantages recited above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AZM PARVEZ whose telephone number is (571)270-1391. The examiner can normally be reached on M-F 8:30-5:00/ Alt Fri day off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MARVIN LATEEF can be reached on 571-270-1493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AAP

4/14/2009

/Marvin M. Lateef/

Supervisory Patent Examiner, Art Unit 4136